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# THE LINEMAN

RURAL ELECTRIFICATION ADMINISTRATION

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## Lineman, Without Hot-stick or Gloves, Electrocuted on Storm-Damaged Line

### VIRGINIA LINE FOREMEN ADOPT NEW STANDARDS

O. I. Heath, Virginia Job Training and Safety Supervisor, and L. Ballantine, Assistant Supervisor, Technical and Industrial Education, State Board of Education, Richmond, Virginia, conducted a foremen's conference for Virginia cooperative line foremen at the Richmond Hotel, May 19, 20 and 21. One of the achievements of the meeting was the discussion of present tagging, grounding, and switching procedures and the adoption of a standard for future use.

This conference was well attended and the most successful foremen's meeting ever held in Virginia. The wide range of topics discussed and the caliber of the program in general indicate the amount of thought and preparation on the part of both Mr. Heath and Mr. Ballantine.

### Man Revived After 66,000-Volt Shock

A lineman working in a substation was working close to the top of an oil circuit breaker. While in this position, part of his body came too close to a coupling capacitor. The 66,000 volt line flashed to his right hand, through his body and out the left foot to the grounded frame of the structure. The shock caused him to fall head first onto a temporary platform on the ground. He was unconscious. The crew began artificial respiration immediately and revived him after 25 or 30 minutes. He was then taken to the hospital.

### Night Repair Job Results in Fatality

A trouble call was received on a section of cooperative line late one evening after the area had been swept by a wind reaching 60 to 68 miles per hour. Two linemen went out to the area involved and found lights burning dimly. They thought perhaps a primary fuse was out on one phase of the substation which feeds this line. Investigation proved the fuse to be good. They followed on down the line to pole B where an oil circuit breaker was in operation and found the breaker open. They closed it and mistakenly assumed that the breaker contacts were defective. They backtracked to pole A, opened up the line and grounded out the jumper to a guy. They then returned to the oil circuit breaker and made up a hot tap fuse to jumper out the O. C. B. It was intended to fasten the jumper with a split bolt connector to point B<sub>1</sub> and by hot line clamp to point B<sub>2</sub>.

One of the linemen climbed the pole and safetied off to apply the fuse jumper. He did not use hot-stick or rubber gloves and the instant he touched the conductor at point B<sub>2</sub> he received a fatal electrical shock. The other lineman on the ground realized something was wrong when he heard the flash and attempted to throw a log chain from the truck over the line and neutral but missed. By this time the other lineman had slumped in his belt and slid down the pole. The belt retarded his fall. Artificial respiration was applied without success.

(continued with diagram, on page 4)

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*David A. Fleming, Editor*

## PIPE DOWN

The following member-accident would be funny if it were not so serious. A fuse failure in a cutout of a member's transformer installation resulted in the door opening up and service being discontinued to the farmstead. This member had been out of service on other occasions due to storms and in each case he had called the cooperative office to have the service restored. The member had not paid too much attention to just what the lineman did on these cases. However, he did know that in each case the lineman climbed the pole and shut the door of the cutout with a stick. It is quite possible that the member, if he thought about it at all, had decided the stick was to enable the job to be done without climbing all the way up to the door. It apparently seemed a lot of bother to call the cooperative office and have them send a man out to do such a small job, so the member decided to do it for himself. In fact, he had just exactly the proper piece of equipment to do this little job without having to climb either a ladder or a pole. This handy little instrument was none less than a long piece of metal pipe! To do this job satisfactorily would require two men to handle the pipe, so he enlisted the aid of his neighbor. The two men picked up the pipe and proceeded to the pole where they raised the pipe and attempted to push the cutout door shut. In doing so, they contacted an energized portion of the cutout or the cutout jumper itself. Both men were knocked to the ground unconscious. Both of them regained consciousness at about the same time. Neither of these men realized what had happened. Each thought the other had assaulted him, knocking him out, whereupon a fight almost ensued. Yes, this incident might have been funny if it were not for the fact that people lose their lives each year attempting to do this very same job because they do not understand the hazards involved.

## "448" Keeps Bugs Away

In some areas of the country gnats, mosquitoes, chiggers and other insects are a source of much discomfort to linemen and brush crews. Pre-war insect repellents were so ineffective as to be of little use. A new insect repellent, known as 448, was developed by the Naval Medical Research Institute for use by the armed forces in the tropics and is now available commercially. The chemical is non-injurious to the user and will keep mosquitoes away for six hours under tropical conditions. It is a liquid dissolved in alcohol. A few drops rubbed on the exposed portions of face, neck and wrists will keep insects away. It actually kills chiggers, and repels bedbugs, sand fleas and other insects. The preparation's usefulness as a repellent for wood ticks is not mentioned in the report.

In purchasing insect repellents containing 448 be sure to obtain solutions which contain at least 80% of the 448 chemical.

## Lineman Loses Hands Disconnecting Transformer

A four-man crew was engaged in running a four-pole primary extension at right angles from an A-5 primary deadend pole on which a transformer was installed. A lineman climbed this A-5 pole to disconnect the transformer from the line. He used an eight foot hot-stick. He then climbed up the pole and placed his safety strap around the pole at the transformer installation just below the neutral wire. The lineman then stepped up the pole a short distance without moving his safety belt, took hold of the down guy with his left hand and hooked the pulley on the hand line to the ring on the deadend clamp which was beyond the suspension insulators. This fixture, of course, was energized. He received a severe electrical shock rendering him unconscious. He was lowered to the ground by other members of the crew and regained consciousness by the time he reached the ground. The injured man's condition was considered very critical by the doctor in charge. Both hands were so severely burned that they could not be saved.



# SIX ELECTRICAL SHOCK ACCIDENTS

**A** lineman was installing a ground wire on a pole which carried an energized conductor. He did not wear his rubber gloves. He climbed to the top of the pole to staple the ground wire. The loose ground wire came in contact with the phase, resulting in a fatal electrical shock.

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A crew of men were working in a substation. The work had been laid out in advance and it was supposed that each employee knew what was to be done. One lineman was instructed to climb up to a point about eight feet below the energized line and under no circumstances to get above the bottom of the disconnects. The line was energized from the top of the disconnects and up.

The foreman, after seeing the man reach the proper position, turned to direct the other employees. It is apparent now that the first man did not understand his instructions. While instructing the other two men, the foreman heard a flash and turned in time to see the first man fall from the substation structure. Evidently he had continued past the top of the disconnects and had come in contact with them. The injured lineman died in the hospital soon after the accident.

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A lineman was working on a substation structure, changing out a bank of transformers. His hand or arm came in contact with an overhead conductor. This conductor had previously been deenergized.

There were no visible burns yet the man died instantly. The accident report covering this accident indicates the possibility of a heart attack rather than electrical shock as the cause of the death. However, this cannot be determined without an autopsy.

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A line crew was sagging conductor on a new section of line. This line crossed under a power company's transmission line at a point close to where the sagging operation was to take place. A lineman, with his rubber gloves carefully tucked into a bag on his belt, climbed the pole to install sagging equipment. It is evident

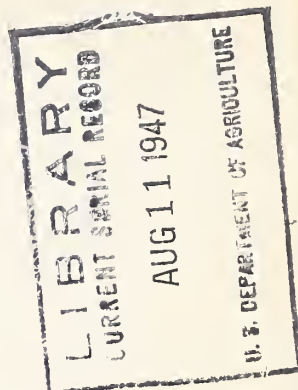
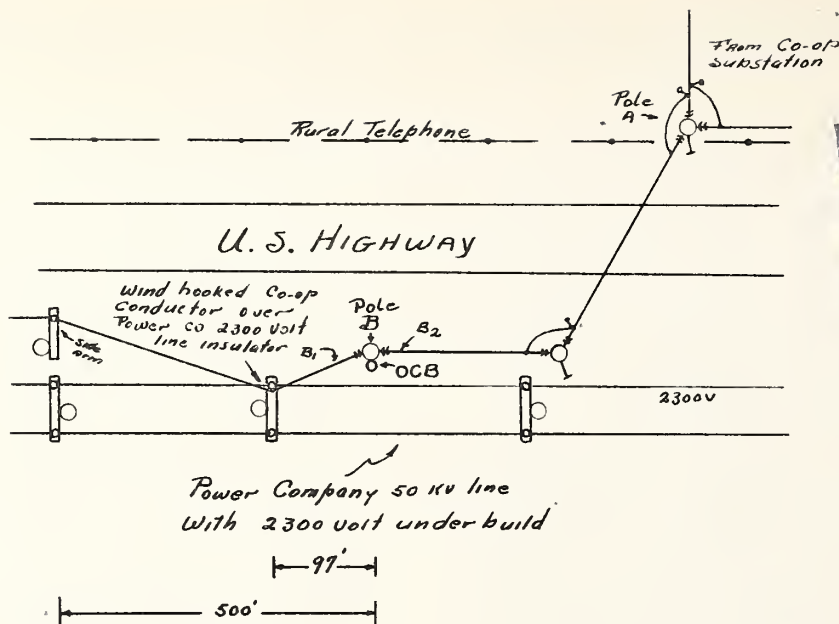
that he considered the line to be perfectly safe, and proceeded to install the equipment without putting on his rubber gloves. In the process of sagging, the co-op conductor became energized by the power company transmission line which passed over it. The lineman received an electrical shock and fell to the ground twenty feet below. He suffered third degree burns on his first and middle fingers of the right hand, third degree burns on all fingers of the left hand. He did not lose consciousness.

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A lineman went out on a trouble call to a member's farm. He noticed a broken lighting arrester on the transformer installation and climbed the pole to cut the arrester in the clear. He did not put on his rubber gloves nor did he de-energize the transformer. When he reached the working position necessary to cut the damaged arrester clear, he reached over with his pliers and received a very severe electrical shock. He fell unconscious to the ground with his belt still around the pole. The member's son fortunately knew how to apply artificial respiration. In a short time the boy had the lineman breathing again, after which he was taken to the hospital. Unless complications set in, the injured man will survive with the possible disfigurement of the right hand which was severely burned.

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An old pole was being replaced by a new one. The new pole had been set and a lineman was sent up to transfer the conductor. He did not wear his rubber gloves but had them carefully tucked in the bag which hung from his belt. He put on his leather gloves and started to remove the conductor. His right spur was in the pole near the ground wire. The instant he touched the live conductor, he received an electrical shock and remained in contact for about five seconds according to the crew watching from below. He then fell unconscious to the ground. The crew worked on the injured man for approximately five minutes before he regained consciousness. The middle finger of the right hand and the bottom of the right foot were badly burned.



(continued from page 1)

This work was being done at night and for that reason the linemen could not see the condition of the line one span to the south of the O. C. B. A 50-kv power company line paralleled the cooperative line from pole A south. The high velocity of the wind had caused the 500-foot span of the cooperative line between the O. C. B.

and the first pole south to swing over and hook over an insulator on the power company's 2300-volt underbuild which was on the power company transmission line. For this reason, the co-op line south of the oil circuit breaker was energized even though the co-op source of power had been disconnected at pole A and even though the O. C. B. at pole B was also open.

Employee Accidents Reported April, May, June, 1947

		ELECTRIC SHOCK	POLE HANDLING & UNLOADING	TREE TRIMMING	HOOKS CUT OUT	CAR TRUCK	FLASH BURN	DYNAMITE	OTHER
APRIL	No Time Lost			3					9
	Disabling	4	2	4		1		1	6
	Fatal	1							
	Total	5	2	7		1		1	15
MAY	No Time Lost		5	5	1	7			15
	Disabling	3	10	9	1	3			10
	Fatal	3						1	
	Total	6	15	14	2	10		1	25
JUNE	No Time Lost	1				2			10
	Disabling	6	2	6			1		9
	Fatal	1							1
	Total	8	2	6		2	1		20
TOTAL 3 MONTHS		19	19	27	2	13	1	2	60